
DEPARTMENT OF WATER MANAGEMENT

Mission:

The mission of the Department of Water Management is to provide water and sewer services in full compliance with all legal and regulatory requirements consistent with the community's expectations for level of service and the community's values for economic development. The department provides for the protection of public health and safety through effective resource management, infrastructure maintenance, adequate fire flows, environmental protection and natural resource management.

PROGRAM DESCRIPTION

Administrative Support

The Department of Water Management provides for the reliable operation and maintenance of water and wastewater facilities, with adequate capacities to meet essential needs to provide safe and sufficient drinking water as well as wastewater collection and treatment to protect the public health and safety. The department also provides critical, essential services necessary for the public health and safety by providing safe drinking water and water for adequate fire protection. These are ways that the department contributes to the goals of ensuring that all Durham citizens are safe and enjoy a prosperous economy and healthy environment. System security for both water and wastewater systems is important for reliable operation and the ability to meet system demands. Attention to security continues to be an integral part of operations. In this way, the department contributes to the goal that Durham citizens enjoy sustainable, thriving neighborhoods with efficient and well-maintained infrastructure. The department pursues self-evaluation, benchmarking opportunities and other sound business practices in an effort to remain competitive with other cities and utilities, while promoting a positive image for the City and the services provided. Support for expanded automation of plant operations continues with the goal of maximizing chemical and power efficiencies, even in an environment of more stringent regulatory requirements, while improving reliability and minimizing staff requirements. Efforts to develop new sources of revenue including initiatives such as Landfill Gas development and use as well as contract and reclaimed water sales will continue. The department is dedicated to supporting the goal that Durham citizens enjoy an efficient and accountable city government.

Administration

\$1,816,943

17.5 FTEs

Administration is tasked with the management, oversight and planning processes necessary for providing adequate water resources and treatment capacity as well as wastewater facilities to meet the needs of a growing community and providing the foundation for a prosperous economy. Personnel manage the ongoing evaluation and improvement of departmental facilities and supervision of the Cross Connection Control unit, which insures the protection of the potable water system. The Department of Water Management administers a broad range of environmental programs in support of the goals that all citizens are safe, enjoy a prosperous economy and healthy environment, and that citizens enjoy an efficient and accountable city government. These efforts provide critical services to the citizens of Durham and are related to water quality, wastewater treatment and industrial activity.

Customer Billing Services

\$1,258,404

20 FTEs

A core service area, this division provides billing services for the utility, responds to customer inquiries, establishes new accounts, and authorizes water and sewer connections and disconnections. Employees in the field services unit provide connection and disconnection services.

Regulatory Compliance, Communications and Outreach Programs

\$310,009

4 FTEs

This division is responsible for addressing regulatory compliance issues, including administration of the City's Industrial Waste Pretreatment Program that enforces the City's Sewer Use Ordinance. The Water Conservation Program and other specialized departmental programs such as resource management, public education and customer outreach and information are also included in this core area.

Operations

Water Supply & Treatment

\$5,215,797

38 FTEs

This core service area is responsible for providing a safe, reliable, economical and sufficient supply of water to the citizens of Durham City and County. Through optimizing treatment processes, maximizing water transfer strategies and conducting monitoring activities, staff ensures that adequate supplies of consistently high quality drinking water are available to Durham's water customers. The Water Supply and Treatment Division (WS&T) operates and maintains two conventional water treatment facilities with a combined treatment capacity of 52 million gallons per day (MGD) and two surface water reservoirs. Service is provided by operating equipment and adjusting treatment technologies to optimize the physical and chemical processes important in effective water treatment and by selecting pumping scenarios that assure adequate supplies at minimum costs.

Wastewater Treatment and Laboratory

\$8,158,527

43 FTEs

This core service area provides the citizens of Durham with cost-effective wastewater treatment and residuals management. This service is accomplished by optimizing the treatment processes so that the North Durham and South Durham facilities discharge effluent of consistently high quality in compliance with State permit requirements. The North and South Durham work groups operate and maintain state-of-the-art tertiary treatment facilities, each with a permitted capacity of 20 million gallons per day (MGD). North Durham personnel assist with the department's Household Hazardous Waste (HHW) Program and conduct monitoring activities related to landfill post closure monitoring and management of the landfill gas collection system. The Laboratory Services Section of the department, which provides lab analysis for water, wastewater, industrial waste and storm water programs, is also located at the South Durham Facility. This ensures that citizens enjoy an efficient and accountable city government which also protects downstream users of the water receiving Durham's discharges and others potentially affected by residual management operations. This service area also includes wastewater treatment costs for city wastewater flows to the County wastewater treatment plant.

Maintenance Support

This core service area provides the citizens of Durham with cost-effective maintenance of water and sewer infrastructure including the distribution and collection systems, raw water lake facilities, water treatment facilities, water reclamation facilities, pump stations and elevated tanks.

Systems Maintenance & Construction

\$7,884,106

116 FTEs

The Systems Maintenance & Construction division provides the routine and emergency maintenance to the City's water distribution and wastewater collection systems as well as the installation of new service lines. Typical tasks include the inspection, cleaning and repairing of water and sewer main trunk lines. This division also operates and maintains fire hydrants and water valves, as well as installing and repairing water and sewer service connections. The Meter Shop provides routine and emergency response to water meter problems, including leaks, unusual consumption rates and water pressure concerns. This group is also responsible for reading water meters.

Plant Engineering & Maintenance

\$3,382,273

41 FTEs

Plant Engineering & Maintenance provides all major maintenance and minor construction support for water, and wastewater plants, pump stations and other facilities. They also have responsibility for long-term maintenance of the closed landfill. Expenses for support services are apportioned to the appropriate core services of water and wastewater as they relate to performance indicators.

System Rehabilitation

\$388,267

4 FTEs

System Rehabilitation provides wastewater collection system monitoring and analytical support necessary for detecting inflow and infiltration problems. The program also provides for manhole rehabilitation and replacement, supplemental flow studies and major pipeline reconstruction and renewal services for both the water distribution and wastewater collection systems.

Post-Closure Monitoring**\$248,417****0.5 FTE**

This service area provides for the monitoring and maintenance of the closed landfill and is supported by the Solid Waste Fund.

RESOURCE ALLOCATION

	Actual FY 2003-04	Adopted FY 2004-05	Estimated FY 2004-05	Adopted FY 2005-06	Change
Appropriations					
Personal Services	\$ 6,988,063	\$ 13,537,502	\$ 13,307,323	\$ 13,775,066	1.8%
Operating	8,745,714	13,426,240	14,087,359	13,899,602	3.5%
Capital	204,947	481,814	787,554	988,075	105.1%
Debt Service	-	-	-	-	-
Transfers to Other Funds	-	-	-	-	-
Total Appropriations	<u>\$ 15,938,724</u>	<u>\$ 27,445,556</u>	<u>\$ 28,182,236</u>	<u>\$ 28,662,743</u>	<u>4.4%</u>
Full Time Equivalents	139	283	283	284	1
Revenues					
Water & Sewer Fund	\$ 15,893,634	\$ 27,197,243	\$ 27,933,327	\$ 28,414,326	4.5%
Solid Waste Fund	45,090	248,313	248,909	248,417	0.0%
Total Revenues	<u>\$ 15,938,724</u>	<u>\$ 27,445,556</u>	<u>\$ 28,182,236</u>	<u>\$ 28,662,743</u>	<u>4.4%</u>

BUDGET ISSUES FOR FY 2005-06

- No changes are made to levels of water and wastewater services. Continued deferment of unfunded and underfunded items may lead to increased costs, loss of system reliability and higher risk for public health and safety in the future.
- Efforts to improve revenue to the utility will continue in an attempt to improve the debt coverage ratio (operating revenues to expense ratio) and begin to address the sagging CIP and long-term financial health of the Water & Sewer Fund.
- Inadequate funding of infrastructure rehabilitation and replacement continues to be an issue of concern for the utility.

UNFUNDED OR UNDERFUNDED ITEMS

• Chemicals – Water Treatment	\$50,000
• Electricity reduction for WS&T	\$50,000
• Paving (ND, SD, ML)	\$275,000
• Mist Lake roof replacement	\$100,000
• Williams Plant roof repair	\$50,000
• Williams Plant painting	\$110,000
• Plant Maintenance Mechanic	\$43,000
• Valve exercise crew	\$122,995
• Leak detection crew	\$53,652
• Fifth mainline crew	\$375,412
• Machinery and equipment repairs at the NDWRF	\$50,000
• Outside laboratory analysis for WS&T	\$15,000
• Machinery and equipment repairs for the WS&T division	\$50,000
• Membership in the Water Environment Research Foundation (WERF)	\$6,240
• Repair and painting of the Gas Holder at the South Durham Water Reclamation Facility	\$100,000
• Additional Lick Creek pump installation	\$200,000
• Williams Plant and Lake Michie Maintenance Information Management System (MIMS)	\$100,000

COMPLETED INITIATIVES FOR FY 2004-05

- Completed utility merger and began first year of operations as a consolidated utility.
- Improved account billing system procedures for improved accuracy and additional revenue.
- Continued work on Lake Michie and Little River Dam repair projects.
- Began water system security project, partially funded by federal grant.
- Completed and distributed utility's annual water quality and consumer confidence report.
- Completed and distributed utility's annual wastewater collection report.
- Began construction of a new methane gas holder at the North Durham Water Reclamation Facility.

DEPARTMENT INITIATIVES FOR FY 2005-06

- Begin several new capital project initiatives including the Brown Water Treatment Plant Expansion.
- Begin preparation for new utility billing system (ERP).
- Conduct Qualserve Peer Review.
- Expand safety training and implement new safety incentive program.
- Begin program for Automated Meter Reading (AMR).
- Complete Lake Michie and Little River Dam repairs.
- Continue water system security project improvements.
- Participate in AWWA Qualserve Performance Indicators Water and Wastewater Utilities Survey (benchmarking).
- Complete improvements for the Methane Gas Holder project at the North Durham Water Reclamation Facility.

GOALS, OBJECTIVES & STRATEGIES FOR FY 2005-06

GOAL: *To provide sufficient quantities of high quality drinking water to all of Durham's customers at the lowest possible cost.*

OBJECTIVE: Zero violations of water supply and treatment regulations or requirements during this budget year.

STRATEGY: Maintain facilities and equipment so that high quality treatment is provided 100% of the time. Continue studies for the investigation of process alternatives and improvements for capacity expansion.

MEASURE:	Actual FY 2004	Adopted FY 2005	Estimated FY 2005	Adopted FY 2006
# of violations of regulations/requirements	0	0	0	0

OBJECTIVE: To monitor annual average flows for assessment of remaining capacity as % of available capacity. Engineering of new facilities to begin when 80% of capacity is reached and construction to begin when 90% of capacity is reached.

STRATEGY: Monitor annual demands and project future raw water demands to meet system growth needs.

MEASURE:	Actual FY 2004	Adopted FY 2005	Estimated FY 2005	Adopted FY 2006
Average annual demand (% of capacity)	73.0%	<80.0%	75.7%	<80.0%

OBJECTIVE: To operate the water supply and treatment facilities to minimize increases in unit cost (\$/MG) as the system demand increases and the need for infrastructure improvements increase.

STRATEGY: Optimize the water treatment process with careful monitoring and control of chemical feed equipment. Continue to minimize costs for pumping while maintaining adequate supply by using "Time-of-Day" electric rates and water transfer by hydropower.

MEASURE:	Actual FY 2004	Adopted FY 2005	Estimated FY 2005	Adopted FY 2006
\$ per MG treated	\$475	\$543	\$520	\$604

GOAL: To provide effective wastewater treatment services so that the needs of Durham's customers can be met in a cost-effective manner.

OBJECTIVE: No violations of wastewater treatment permits or regulations at the water reclamation facilities during this budget year.

STRATEGY: Operate and maintain facilities and equipment so that adequate treatment is provided 100% of the time. Increase back-up power at SDWRF.

MEASURE:	Actual FY 2004	Adopted FY 2005	Estimated FY 2005	Adopted FY 2006
# of violations of regulations/ requirements	1	0	0	0

OBJECTIVE: To monitor annual average flows for assessment of remaining capacity as % of available capacity to meet state rules. Engineering of new facilities to begin when 80% of capacity is reached and construction to begin when 90% of capacity is reached.

STRATEGY: Continue to track and analyze flows relative to system capacity. Continue efficiency improvements at both wastewater plants.

MEASURE:	Actual FY 2004	Adopted FY 2005	Estimated FY 2005	Adopted FY 2006
Annual average flow demand (MG)	47.9%	50%	50%	50%

OBJECTIVE: To operate the water reclamation facilities to minimize increases in unit cost (\$/MG) as the system demand increases and the need for infrastructure improvements increase.

STRATEGY: Optimize the water reclamation process improvements. Continue to minimize costs by efficient energy usage strategies and effective staff deployment.

MEASURE:	Actual FY 2004	Adopted FY 2005	Estimated FY 2005	Adopted FY 2006
\$ Per MG Treated	\$918	\$1065	\$950	\$1047

GOAL: To provide maintenance and repair of all components of the water distribution and wastewater collection systems.

OBJECTIVE: To ensure that 95% of large meters (1½ inch or larger) meet AWWA accuracy and testing frequency standards.

STRATEGY: Test the accuracy of all large meters per AWWA standards.

MEASURE:	Actual FY 2004	Adopted FY 2005	Estimated FY 2005	Adopted FY 2006
% of meters tested according to AWWA recommended testing frequency	100%	95%	100%	95%

OBJECTIVE: To maintain sewer collection system in good condition and meet sewer permit requirements.

STRATEGY: Clean a minimum of 10% of the sewer system per year.

MEASURE:	Actual FY 2004	Adopted FY 2005	Estimated FY 2005	Adopted FY 2006
% of sewer system cleaned	8%	10%	8%	10%

GOAL: *To provide accurate water and sewer bills to customers, meeting effectiveness and accuracy standards.*

OBJECTIVE: To provide accurate bills to customers requiring minimal corrections for erroneous bills.

STRATEGY: Perform process reporting and monitoring of accounts in order to ensure accuracy of bills mailed.

MEASURE:	Actual FY 2004	Adopted FY 2005	Estimated FY 2005	Adopted FY 2006
Billing accuracy rate per 10,000 bills mailed	N/A	NA	99.7%	99.8%